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NATIONAL SCIENCE FOUNDATION AUTHORIZATION ACT AMENDMENTS OF 1991

JUNE 25, 1991.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. BROWN, from the Committee on Science, Space, and Technology, submitted the following

REPORT

[To accompany H.R. 2282]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, Space, and Technology, to whom was referred the bill (H.R. 2282) to amend the National Science Foundation Authorization Act of 1988, and for other purposes, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

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The amendment is as follows:

Strike out all after the enacting clause and insert in lieu thereof the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Science Foundation Authorization Act Amendments of 1991".

SEC. 2. AUTHORIZATION OF APPROPRIATIONS.

(a) FISCAL YEAR 1992.—Section 101(e) of the National Science Foundation Authorization Act of 1988 is amended to read as follows:

"(e) There are authorized to be appropriated to the Foundation \$2,722,000,000 for fiscal year 1992, which shall be available for the following categories:

"(1) Research and Related Activities, \$1,940,000,000, which shall be available for the following subcategories:

"(A) Mathematical and Physical Sciences, \$626,580,000.

"(B) Engineering, \$247,700,000.

"(C) Biological, Behavioral, and Social Sciences, \$355,640,000.

"(D) Geosciences, \$419,540,000.

"(E) Computer and Information Science and Engineering, \$229,500,000.

"(F) Scientific, Technological, and International Affairs, \$61,040,000.

"(2) Education and Human Resources, \$390,000,000.

"(3) United States Antarctic Program, \$193,000,000.

"(4) Academic Research Facilities Modernization Program, \$40,000,000.

"(5) Academic Research Instrumentation Program, \$33,500,000.

"(6) Salaries and Expenses, \$122,000,000.

"(7) Office of Inspector General, \$3,500,000."

(b) FISCAL YEAR 1993.—Section 101(f) of the National Science Foundation Authorization Act of 1988 is amended to read as follows:

"(f) There are authorized to be appropriated to the Foundation \$3,068,000,000 for fiscal year 1993, which shall be available for the following categories:

"(1) Research and Related Activities, \$2,210,000,000, which shall be available for the following subcategories:

"(A) Mathematical and Physical Sciences, \$731,460,000.

"(B) Engineering, \$278,325,000.

"(C) Biological, Behavioral, and Social Sciences, \$400,400,000.

"(D) Geosciences, \$472,665,000.

"(E) Computer and Information Science and Engineering, \$258,790,000.

"(F) Scientific, Technological, and International Affairs, \$68,360,000.

"(2) Education and Human Resources, \$439,000,000.

"(3) United States Antarctic Program, \$210,000,000.

"(4) Academic Research Facilities Modernization Program, \$43,000,000.

"(5) Academic Research Instrumentation Program, \$36,000,000.

"(6) Salaries and Expenses, \$126,000,000.

"(7) Office of Inspector General, \$4,000,000."

(c) LIMITATION.—Section 101 of the National Science Foundation Authorization Act of 1988 is amended by adding at the end the following new subsection:

"(i) Of the amount authorized in subsection (e), no funds shall be available for construction of the Laser Interferometer Gravitational Wave Observatory. This limitation shall not apply to expenditure of funds for research activities or design studies associated with such project."

SEC. 3. ADMINISTRATIVE INDIRECT COST REIMBURSEMENT.

(a) DEFINITIONS.—For purposes of this section—

(1) the term "administrative indirect costs" means general administrative and executive expenses, departmental administrative and support services, and sponsored projects administrative expenses, and does not include expenses incurred for the operation, maintenance, preservation, and protection of the institution's plant, expenses incurred for the operation of the library, expenses incurred for the administration of student affairs and services to students, or depreciation or use allowances for buildings and equipment;

(2) the term "direct costs" means costs that can be identified specifically with a particular federally sponsored project;

(3) the term "facilities primarily devoted to research" has the meaning given such term pursuant to section 204(c)(1) of the National Science Foundation Authorization Act of 1988;

(4) the term "indirect costs" means costs incurred for common or joint objectives that include, but cannot be identified specifically with, a particular federally sponsored project;

(5) the term "institution of higher education" has the meaning given such term in section 1201(a) of the Higher Education Act of 1965;

(6) the term "modified direct costs" means those direct costs which consist of salaries and wages, fringe benefits, materials and supplies, services, travel, and subgrants and subcontracts up to \$25,000 each;

(7) the term "renovation" has the meaning given such term pursuant to section 204(c)(1) of the National Science Foundation Authorization Act of 1988; and

(8) the term "repair" has the meaning given such term pursuant to section 204(c)(1) of the National Science Foundation Authorization Act of 1988.

(b) **ADMINISTRATIVE INDIRECT COST RATE.**—Financial assistance provided by the National Science Foundation to an institution of higher education may include an amount for administrative indirect costs of the institution, at a rate not to exceed 26 percent of the modified direct costs of the project.

(c) **NON-ADMINISTRATIVE INDIRECT COSTS.**—Financial assistance provided by the National Science Foundation to an institution of higher education may include an amount for non-administrative indirect costs of the institution.

(d) **BUILDINGS AND EQUIPMENT.**—Amounts paid, in connection with financial assistance provided by the National Science Foundation to an institution of higher education, for depreciation or use allowance may only be used for construction, renovation, or repair of facilities primarily devoted to research owned by the institution of higher education, or for the purchase of equipment necessary to conduct scientific or engineering research.

(e) **CERTIFICATION.**—The chief financial officer of an institution of higher education receiving financial assistance from the National Science Foundation shall certify to the Director of the National Science Foundation at the end of each fiscal year that all expenditures reported in connection with a claim for indirect costs during such fiscal year were made for appropriate purposes, and that all amounts received for depreciation or use allowance with respect to buildings or equipment have been expended or are reserved for appropriate purposes in accordance with subsection (d).

(f) **FAILURE TO COMPLY.**—If the Director of the National Science Foundation determines that an institution of higher education has expended financial assistance in violation of this section, the Director shall recover from the institution of higher education an amount equal to the amount improperly expended, together with interest on such amount at a rate to be determined by the Director. Such amounts may be recovered through an offset against indirect cost awards to the institution of higher education in the subsequent fiscal year, or through a civil suit.

(g) **COMMITTEE DETERMINATION.**—

(1) **ESTABLISHMENT AND PURPOSE.**—The Director of the Office of Science and Technology Policy shall establish a committee whose purpose shall be to—

(A) identify which costs associated with federally funded projects can be properly allocated as—

(i) direct costs; and

(ii) the various categories of indirect costs, including buildings and equipment depreciation and use allowance; and

(B) examine the current practices of institutions of higher education in allocating costs for library expenses and for operation and maintenance of research facilities, make recommendations based on its finding as to the appropriateness of such practices, and determine whether changes in such practices are necessary.

(2) **MEMBERSHIP.**—The committee established under this subsection shall include—

(A) a representative of the Department of Health and Human Services;

(B) a representative of the Department of Defense;

(C) a representative of the Department of Energy;

(D) a representative of the National Science Foundation;

(E) a representative of the Office of Management and Budget;

(F) not more than 5 representatives of the higher education community, to be selected by the Director of the Office of Science and Technology Policy, of whom at least one shall represent researchers and at least one shall represent an institution of higher education which is not ranked

among the top 100 of the institutions receiving Federal research and development funding; and

(G) the Director of the Office of Science and Technology Policy, who shall serve as Chairman of the committee.

(3) **REPORT.**—The committee established under this subsection shall submit to Congress a report containing its final identification under paragraph (1)(A) and the results of its activities under paragraph (1)(B), within 5 months after the date of enactment of this Act.

(h) **EFFECTIVE DATE.**—Subsections (b), (c), (d), (e), and (f) of this section shall take effect with respect to financial assistance provided after September 30, 1991.

SEC. 4. ADMINISTRATIVE AMENDMENTS.

Section 5(e) of the National Science Foundation Act of 1950 (42 U.S.C. 1864) is amended by striking the last sentence of paragraph (2).

SEC. 5. BUY AMERICA PROVISIONS.

(a) **RESTRICTIONS ON CONTRACT AWARDS.**—No contract or subcontract made with funds authorized by an amendment made by this Act may be awarded for the procurement of an article, material, or supply produced or manufactured in a foreign country whose government unfairly maintains in government procurement a significant and persistent pattern or practice of discrimination against United States products or services which results in identifiable harm to United States businesses, as identified by the President pursuant to subsection (g)(1)(A) of section 305 of the Trade Agreements Act of 1979 (19 U.S.C. 2515(g)(1)(A)). Any such determination shall be made in accordance with such section 305.

(b) **PROHIBITION AGAINST FRAUDULENT USE OF "MADE IN AMERICA" LABELS.**—If it has been finally determined by a court or Federal agency that any person intentionally affixed a label bearing a "Made in America" inscription, or an inscription with the same meaning, to any product sold in or shipped to the United States that is not made in the United States, that person shall be ineligible to receive any contract or subcontract from the National Science Foundation, pursuant to the debarment, suspension, and ineligibility procedures in subpart 9.4 of chapter 1 of title 48, Code of Federal Regulations.

(c) **BUY AMERICAN REQUIREMENT.**—(1) The Director of the National Science Foundation is authorized to award to a domestic firm a contract for the purchase of goods that, under the use of competitive procedures, would be awarded to a foreign firm, if—

(A) the final product of the domestic firm will be completely assembled in the United States;

(B) when completely assembled, more than 50 percent of the final product of the domestic firm will be domestically produced; and

(C) the difference between the bids submitted by the foreign and domestic firms is not more than 6 percent.

(2) This subsection shall not apply to the extent to which—

(A) in the opinion of the Director of the National Science Foundation, after taking into consideration international obligations and trade relations, such applicability would not be in the public interest;

(B) in the opinion of the Director of the National Science Foundation, after consultation with the Secretary of Defense, compelling national security considerations require otherwise; or

(C) the President determines that such an award would be in violation of the General Agreement on Tariffs and Trade or an international agreement to which the United States is a party.

(3) This subsection shall apply only to contracts made for which—

(A) amounts are authorized by an amendment made by this Act to be made available; and

(B) solicitations for bids are issued after the date of enactment of this Act.

(4) The Director of the National Science Foundation, before January 1, 1993, shall report to the Congress on contracts covered under this subsection—

(A) entered into with foreign firms pursuant to a determination made under paragraph (2) of this subsection; and

(B) awarded to domestic firms pursuant to paragraph (1) of this subsection, in fiscal years 1991 and 1992.

(5) For the purposes of this subsection—

(A) the term "domestic firm" means a business entity that is incorporated in the United States and that conducts business operations in the United States; and

(B) the term "foreign firm" means a business entity not described in subparagraph (A).

I. SUMMARY

PURPOSE OF THE BILL

The principal purpose of the bill is to authorize appropriations for the National Science Foundation (NSF) scientific directorates for fiscal year 1992 and fiscal year 1993. The NSF Authorization Act of 1988 (Public Law 100-570), which is amended by H.R. 2282, provides an authorization of appropriations for Research and Related Activities (R&RA) for fiscal year 1992 and fiscal year 1993 but not for the individual scientific directorates that comprise R&RA. H.R. 2282, as amended, also lowers the total authorization level for NSF for fiscal year 1992 and fiscal year 1993. The NSF Authorization Act of 1988 established the Academic Research Facilities Modernization program, with an authorized funding level of \$250 million per year for fiscal year 1992 and fiscal year 1993, and authorized doubling of the total NSF budget by fiscal year 1992, on the basis of the fiscal year 1987 budget level. Due to the failure of appropriations to achieve the authorization levels for the past three fiscal years, the Public Law 100-570 authorization is about \$500 million above the President's request for fiscal year 1992.

The bill also includes provisions regarding reimbursement of indirect costs by NSF to institutions of higher education, including a cap of 26 percent on the administrative costs portion of indirect costs. Finally, the bill imposes restrictions on using authorized funds for procurements by NSF from other than U.S. firms.

BUDGET EXPLANATION

H.R. 2282, as amended, authorizes appropriations to NSF for fiscal year 1992 in the amount of \$2,722,000,000 and for fiscal year 1993 in the amount of \$3,068,000,000 as follows:

Budget activities—Authorization fiscal year 1992

Research and related activities:	
Mathematical and physical sciences	\$626,580,000
Engineering	247,700,000
Biological, behavioral, and social sciences	355,640,000
Geosciences	419,540,000
Computer and information sciences and engineering	229,500,000
Scientific, technological, and international affairs	61,040,000
Subtotal	1,940,000,000
Education and human resources	390,000,000
United States Antarctic Program	193,000,000
Academic Research Facilities Modernization Program	40,000,000
Academic Research Instrumentation Program	33,500,000
Salaries and expenses	122,000,000
Office of the Inspector General	3,500,000
Total	2,722,000,000

Budget activities—Authorization fiscal year 1993

Research and related activities:	
Mathematical and physical sciences	731,460,000
Engineering	278,325,000
Biological, behavioral, and social sciences	400,400,000

Geosciences.....	\$472,665,000
Computer and information sciences and engineering.....	258,790,000
Scientific, technological, and international affairs.....	68,360,000
Subtotal.....	2,210,000,000
Education and human resources.....	439,000,000
United States Antarctic Program.....	210,000,000
Academic Research Facilities Modernization Program.....	43,000,000
Academic Research Instrumentation Program.....	36,000,000
Salaries and expenses.....	126,000,000
Office of the Inspector General.....	4,000,000
Total.....	3,068,000,000

Fiscal year 1992

The total authorization for NSF in fiscal year 1992 is at the level of the President's budget request. In addition, the authorizations for Education and Human Resources, United States Antarctic Program, Salaries and Expenses, and Office of Inspector General are identical to the President's request, as shown in Figure 1.

FIGURE 1. NATIONAL SCIENCE FOUNDATION BUDGET COMPARISONS: ACTIONS BY THE COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

[In millions of dollars] ¹

Activities	Fiscal year 1992				Fiscal year 1993		
	Current fiscal year 1991	Administrative request	Committee recommendation H.R. 2282	Changes from administrative request	Administrative request ²	Committee recommendation H.R. 2282	Changes from administrative request
Research and related activities:							
Biological, behavioral, and social sciences.....	315	356	356	0	410	400	-10
Computer and information science and engineering.....	186	230	230	0	265	259	-6
Engineering.....	216	248	248	0	285	278	-7
Geosciences.....	368	420	420	0	484	473	-11
Mathematical and physical sciences.....	558	650	627	-24	749	731	-18
Scientific, technological, and international affairs.....	51	61	61	0	70	68	-2
Subtotal.....	1,694	1,964	1,940	-24	2,263	2,210	-53
Education and human resources.....	322	390	390	0	415	439	+24
U.S. Antarctic Program.....	175	193	193	0	210	210	0
Academic Research Facilities Modernization Program.....	20	0	40	+40	0	43	+43
Academic Research Instrumentation Program.....	0	50	34	-16	50	36	-14
Salaries and expenses.....	101	122	122	0	126	126	0
Office of the Inspector General.....	3	4	4	0	4	4	0
Total.....	2,316	2,722	2,722	0	3,068	3,068	0

¹ Dollar amounts have been rounded.

² NSF 3-year budget estimate.

R&RA is reduced below the President's request by \$23.5 million, which is taken from the Mathematical and Physical Sciences directorate budget activity. The remaining scientific directorate authorizations within R&RA are at the President's request level. The \$23.5 million is the amount proposed in the President's budget for construction of the Laser Interferometer Gravitational Wave Observa-

tory (LIGO). The bill prohibits construction, but not research or design activities, associated with LIGO for fiscal year 1992.

The final two authorizations are for the Academic Research Facilities Modernization Program, \$40 million, and Academic Research Instrumentation Program, \$33.5 million. The President's budget request included no funding for the former and \$50 million for the later program.

Fiscal year 1993

The authorization for fiscal year 1993 and based on NSF's three-year budget projection, submitted to Congress at the time of the President's fiscal year 1992 budget request. The three-year projection assumes the NSF budget doubling will be achieved by fiscal year 1994. Comparisons between H.R. 2282 and the three-year projection for individual budget activities are shown in Figure 1.

The total authorization for NSF is identical to the NSF projection, an increase of 13.4 percent above the fiscal year 1992 authorization. R&RA is increased by 13.9 percent, rather than 15.3 percent as in the three-year projection, with increases in the scientific directorates proportional to the three-year projection levels. Education and Human Resources is increased by 12.7 percent, rather than 6.4 percent as in the three-year projection. The Academic Research Facilities Modernization program is increased by 10 percent and the Academic Research Instrumentation Program by 7.4 percent.

Authorizations for the United States Antarctic Program, Salaries and Expenses, and the Office of Inspector General are identical to the three-year projection.

OTHER PROVISIONS

H.R. 2282, as amended, establishes policies on reimbursement of indirect costs associated with NSF support of activities of institutions of higher education. The administrative component of indirect costs is capped at 26 percent of the modified direct costs. Indirect costs associated with depreciation or use allowance for research facilities may be used only for construction, renovation, or repair of research facilities or for purchase of research equipment. Finally, the Director of the Office of Science and Technology Policy is directed to establish a committee to recommend a proper allocation of costs for federal funded research among the direct and indirect cost categories, and to report to Congress on its findings.

H.R. 2282, as amended, places some restrictions on use of funds authorized by the bill for NSF procurements from foreign firms. No funds may be used to procure materials produced in a foreign country engaging in unfair trade practices as identified by the President pursuant to section 305 of the Trade Agreements Act, and no funds may be used for a contract with an individual who has been proven to have improperly attached a "Made in America" inscription to any product sold in or shipped to the United States. Also, the bill specifies conditions under which preference may be given to domestic firms in award of competitive contracts for the purchase of goods.

II. COMMITTEE ACTIONS

The Subcommittee on Science held three days of authorization hearings on NSF, and the full Committee held a posture hearing on NSF.

On February 20, 1991, the NSF Acting Director and the Chairman of the National Science Board presented the fiscal year 1992 budget request including a discussion of the overall balance among types of programs and proposals for significant program augmentations and for new initiatives. On March 12, 1991, representatives from the academic community presented views on the overall NSF budget and program proposals for fiscal year 1992, and a panel of witnesses representing State educational agencies reviewed NSF activities in support of improvement of science and math education in primary and secondary schools. On March 13, 1991, panels of academic and industrial scientists commented on three specific NSF program areas: the research instrumentation and research facilities modernization programs, the Laser Interferometer Gravitational Wave Observatory (LIGO), and the initiative on materials synthesis and processing. Finally, on April 11, 1991, the new NSF Director, Dr. Walter Masey, appeared before the full Committee to present his views on the state of NSF and his vision for the future of the Foundation.

The hearings highlighted broad support for the NSF budget proposal for fiscal year 1992. The proposed budget will allow NSF to develop new initiatives in high-performance computing and materials science and to augment existing efforts in global change research. The proposal provides substantial increases for science education programs and will allow NSF to strengthen individual investigator awards in the core research programs. The principal criticism raised by non-federal witnesses was the failure of NSF to request funding for the Academic Research Facilities Modernization Program.

On May 2, 1991, the Subcommittee on Science met to markup a draft NSF authorization bill offered by Chairman Boucher. Mr. Packard offered an amendment which was intended to bring the fiscal year 1993 authorization level to the level of the Administration's three-year projection for NSF. The amendment reduced the total NSF authorization level in fiscal year 1993 by \$2 million, removing \$1 million from the Academic Research facilities Modernization Program which still funds the program at \$43 million over the Administration's estimate. The amendment also reduced the Education and Human Resources Directorate by \$1 million, which still allows a 5.8 percent increase over the estimate for fiscal year 1993. (See Figure 1.) The amendment was approved by voice vote, and the draft bill, as amended, was approved and ordered reported.

The draft bill, as amended, was introduced by Mr. Boucher on May 9, 1991, including as cosponsors Mr. Packard and 16 other Members.

On May 22, 1991, the full Committee met to markup H.R. 2282. An amendment was offered by Mr. Boucher on behalf of himself, Mr. Packard, Mr. Walker, and Mr. Fawell to establish policies for NSF on reimbursement of indirect costs associated with financial assistance to institutions of higher education. An amendment to

the Boucher amendment was offered by Mr. Henry to change the effective date of the provisions of the Boucher amendment from after September 30, 1991 to after June 30, 1992. The purpose of the amendment was to synchronize the effective date with the fiscal year employed by most universities. After discussion the amendment was withdrawn. The amendment by Mr. Boucher was approved by voice vote. An amendment was offered by Mr. Traficant to impose several "Buy America" provisions on NSF competitive procurements and was approved by voice vote.

III. EXPLANATION OF H.R. 2282, AS AMENDED

H.R. 2282 amends the current NSF authorization law (Public Law 100-570), which extends through fiscal year 1993. The existing law would double the NSF budget over five years, with fiscal year 1987 as the base year. Due to uncertainties in estimating the needs of the individual scientific directorates in the fourth and fifth years, the Congress did not include specific directorate authorizations, beyond the overall authorization for Research and Related Activities, in those years. H.R. 2282 adds authorizations for the scientific directorates and adjusts the total NSF authorizations for the two fiscal years to adjust the authorization increases to reflect the current fiscal situation.

Section 2(a) authorizes appropriations for fiscal year 1992. The bill endorses the Administration's budget request in large part. The main Subcommittee action was to include an authorization of \$40 million for the Academic Research Facilities Modernization Program, for which no funding request was made in the Administration's request. The rationale for this action is discussed in the Committee Views. The funds for the facilities program were obtained by a reduction of \$23.5 million in the Mathematical and Physical Sciences and a reduction of \$6.5 million in the Academic Research Instrumentation budget activities. The reason for the former action is discussed in the Committee Views. The reduction in the instrumentation program is not intended to imply that the funding level proposed was excessive by simply reflects the importance the Committee attaches to the facilities program. The Committee also views the two programs as connected since many modern instruments cannot function in inadequate laboratory spaces.

The authorization level for fiscal year 1992 will provide an increase of \$406 million above the fiscal year 1991 appropriation. This budget growth will allow NSF to strengthen individual investigator support for the core research programs and sustain vigorous support for educational activities. In addition, the budget will allow NSF to make significant contributions to interagency research initiatives in high-performance computing and global change research, as well as initiate a new cross-directorate research program on materials synthesis and processing.

Section 2(b) authorizes appropriations for fiscal year 1993. The total authorization level is identical to the NSF three-year budget projection required by statute to be submitted to Congress with the fiscal year 1992 budget request. The budget projection would lead to doubling of the NSF budget by FY 1994 using fiscal year 1987 as the base year. Relative to the three-year projection, the bill reduces

growth in R&RA by 1.5 percent in order to increase the growth in Education and Human Resources from 6.4 percent to 12.7 percent and to provide 10 percent growth in the research facilities program.

Section 2(c) prohibits construction of LIGO in fiscal year 1992. No prohibition is applied to research activities or design studies associated with LIGO. This action is discussed in the Committee Views.

Section 3 regulates indirect cost recovery for financial assistance provided by NSF to institutions of higher education. Funds provided to universities for administrative indirect costs may not exceed 26 percent of the modified direct costs of a research grant. Funds provided to universities for other indirect costs are not subject to a cap; however, funds provided for depreciation or use allowance with respect to buildings and equipment may only be used for construction, renovation, or repair of university-owned facilities primarily devoted to research, or for the purchase of equipment necessary to conduct scientific or engineering research.

The provision requires that the chief financial officer of an institution receiving assistance certify at the end of each fiscal year that all expenditures reported in connection with a claim for indirect costs were made for appropriate purposes, and that all amounts received for depreciation or use allowance have been expended or reserved for appropriate purposes. If an institution of higher education has expended financial assistance in violation of these requirements, the Director shall recover from the institution an amount equal to the amount improperly expended together with interest. Such amounts may be recovered through an offset against indirect cost awards in the subsequent fiscal year, or through civil suit.

The provision establishes a committee, chaired by the Director of the Office of Science and Technology Policy, to identify which research costs should be appropriately allocated as direct costs or as indirect costs, and if indirect, to which category. In addition, the Committee is charged with examining current practices at universities in allocating costs for library expenses and for operation and maintenance of facilities, and determine whether changes in such practices are necessary.

The provisions of section 3 shall apply to financial assistance provided after September 30, 1991.

Section 4 is a technical amendment to the NSF Act of 1950. The purpose is to strike the last sentence of paragraph (2) of subsection 5(e) of the Act. This action removes a sunset provision on the subsection which specifies the relationship between the National Science Board and the NSF Director relative to the authority of NSF to make grants, contracts, and other contractual arrangements. The original language, unintentionally, was a sunset provision for the entire subsection rather than for paragraph (2). Paragraph (2) provided some limitations on delegation authority of the Board contained in paragraph (1) and required a biennial report explaining delegation actions taken. The Committee believes that the provisions of paragraph (2) are valuable and ought to stay in force.

Section 5 provides three "Buy America" provisions that apply to use of funds authorized by the bill. Section 4(a) requires that no contract or subcontract be awarded for procurement of an article,

material, or supply produced or manufactured in a foreign country which discriminates against United States products or services as identified by the President pursuant to section 305 of the Trade Agreements Act of 1979.

Section 5(b) prohibits award of a contract or subcontract to any person who as determined by a court of federal agency, has intentionally affixed a "Made in America" label to any product sold in or shipped to the United States which was not made in the United States.

Section 5(c) authorizes NSF to award to a domestic firm a contract for the purchase of goods that would otherwise be awarded to a foreign firm under competitive procurement procedures. Such an award is allowable if the product is completely assembled in the United States, has more than 50 percent domestically produced components, and is within 6 percent of the cost of the foreign product. The NSF Director has discretion in applying the provisions of Section 5(c) on the basis of the public interest, in light of international obligations and trade relations; or for compelling national security considerations. The President is given discretion not to apply the provisions of Section 5(c) if an award would violate the General Agreement on Tariffs and Trade or any other international agreements to which the United States is a party.

IV. SECTION ANALYSIS OF H.R. 2282, AS REPORTED

A bill to authorize appropriations for activities of the National Science Foundation (NSF) for fiscal years 1992 and 1993.

Section 1.—Cites the Act's title as the "National Science Foundation Authorization Act Amendments of 1991".

Section 2(a).—Section 101(e) of the National Science Foundation Authorization Act of 1988 is amended to authorize an appropriation of \$2,722,000,000 to the NSF for fiscal year 1992, in the following categories:

1. Research and related activities within areas defined by items 2 to 7	\$1,940,000,000
2. Mathematical and physical sciences	626,580,000
3. Engineering	247,700,000
4. Biological, behavioral, and social sciences	355,640,000
5. Geosciences	419,540,000
6. Computer and information sciences and engineering	229,500,000
7. Scientific, technological, and international affairs	61,040,000
8. Education and human resources	390,000,000
9. United States Antarctic Program	193,000,000
10. Academic Research Facilities Modernization Program	40,000,000
11. Academic Research Instrumentation Program	33,500,000
12. Salaries and expenses	122,000,000
13. Office of the Inspector General	3,500,000

Section 2(b).—Section 101(f) of the National Science Foundation Authorization Act of 1988 is amended to authorize an appropriation of \$3,068,000,000 to NSF for fiscal year 1993, in the following categories:

1. Research and related activities within areas defined by items 2 to 7	\$2,210,000,000
2. Mathematical and physical sciences	731,460,000
3. Engineering	278,325,000
4. Biological, behavioral, and social sciences	400,400,000
5. Geosciences	472,665,000

6. Computer and information sciences and engineering.....	\$258,790,000
7. Scientific, technological, and international affairs	68,360,000
8. Education and human resources.....	439,000,000
9. United States Antarctic Program.....	210,000,000
10. Academic Research Facilities Modernization Program.....	43000,000
11. Academic Research Instrumentation Program.....	36,000,000
12. Salaries and expenses	126,000,000
13. Office of the Inspector General.....	4,000,000

Section 2(c).—Amends Section 101 of the National Science Foundation Act of 1988 by adding a new subsection. This subsection prohibits the use of amounts authorized for fiscal year 1992 in subsection (e) for construction of the Laser Interferometer Gravitational Wave Observatory. However, this prohibition does not apply to the expenditure of funds for research activities or design studies associated with the project.

Section 3.—Regulates indirect cost recovery at institutions of higher education for grants funded by NSF.

Section 3(a).—Defines terms used in section 3.

Section 3(b).—Authorizes the Director of NSF to provide funds for administrative indirect costs at institutions of higher education in an amount not to exceed 26 percent of the modified direct costs of a research grant.

Section 3(c).—Authorizes the Director to provide funds to institutions of higher education for non-administrative indirect costs, but does not specify an upper limit.

Section 3(d).—Requires that amounts paid by NSF to institutions of higher education in connection with depreciation or use allowance for buildings and equipment may only be used for construction, renovation, or repair of university-owned facilities primarily devoted to research, or for the purchase of equipment necessary to conduct scientific or engineering research.

Section 3(e).—Requires that the chief financial officer of an institution receiving assistance from NSF certify at the end of each fiscal year that all expenditures reported in connection with a claim for indirect costs during such fiscal year were made for appropriate purposes, and that all amounts received for depreciation or use allowance have been expended or reserved for appropriate purposes.

Section 3(f).—Requires that, if an institution of higher education has expended financial assistance in violation of these requirements, the Director shall recover from the institution an amount equal to the amount improperly expended together with interest. Such amounts may be recovered through an offset against indirect cost awards in the subsequent fiscal year, or through civil suit.

Section 3(g).—Requires the Director of the Office of Science and Technology Policy to establish a committee to identify which research costs can be properly allocated as direct costs or as indirect costs, and if indirect, to which category. In addition, the Committee will examine current practices at universities in allocating indirect costs for library expenses and for operation and maintenance of facilities, and determine whether changes in such practices are necessary.

Section 3(h).—Provides that section 3 shall apply to financial assistance provided after September 30, 1991.

Section 4.—Amends section 5(e) of the National Science Foundation Act of 1950 by striking out the last sentence of paragraph (2).

Section 5(a).—Prohibits award of contracts or subcontracts to firms in foreign countries identified by the President pursuant to subsection (9)(1)(A) of section 305 of the Trade Agreements Act of 1979.

Section 5(b).—Prohibits award of a contract or subcontract to an individual who, as determined by a court or federal agency, has intentionally affixed a "Made in America" label to any product sold in or shipped to the United States that is not made in the United States.

Section 5(c).—Authorizes the NSF Director to award to a domestic firm a contract for purchase of goods that would otherwise be awarded to a foreign firm under competitive contracting procedures. Such an award may be made under the following conditions: (1) the final product will be completely assembled in the United States; (2) more than 50 percent of the final product will be domestically produced; and (3) the difference between the bids of the foreign and domestic firms is not greater than 6 percent. The provisions of this subsection do not apply if the NSF Director determines that they are not in the public interest or that compelling national security considerations apply, or if the President determines that the General Agreement on Tariffs and Trade or other international agreements would be violated. The NSF Director is required to report to Congress before January 1, 1993, on contracts covered by this subsection.

V. COMMITTEE VIEWS

1. ACADEMIC RESEARCH FACILITIES MODERNIZATION PROGRAM

Background

Deterioration of academic research facilities has received much attention over the past several years. The dimensions of the problem were highlighted in a 1986 report of the White House Science Council entitled, "A Renewed Partnership". This report estimated that \$10 billion over ten years would be needed to refurbish academic research facilities. An NSF survey from the same year revealed that more than 80 percent of research administrators at doctorate-granting universities reported that outmoded research facilities limited the scope of research that could be carried out. The most recent NSF survey has indicated that the amount of deferred repair, maintenance, and new construction for research facilities in U.S. academic institutions has increased 40 percent from 1988 to 1990, to a level of approximately \$12 billion.

Lack of adequate facilities limits the kinds of research that can be undertaken and, ultimately, will prevent academic institutions from staying at the forefront of knowledge. Obsolescence or unavailability of facilities will not only result in missed research opportunities but will also prevent development of first-rate faculty and graduate students. The erosion of the academic research environment will deflect the best students from academic careers.

As one response to the serious facilities problem, the Congress incorporated the Academic Research Facilities Modernization Program as title II of the NSF Authorization Act of 1988 (Public Law 100-570). In the first competition under the program, NSF received

more than 425 proposals requesting a total of \$320 million. From appropriations of \$20 million in each of fiscal year 1990 and fiscal year 1991, NSF made awards to 78 universities, colleges, and non-profit institutions in 37 states. The \$40 million provided by the awards was augmented by \$61 million in matching funds from the various non-federal sources. Therefore, the program leveraged \$3 in non-federal resources for every \$2 awarded.

Committee view

The Committee believes that it is essential that the Academic Research Facilities Modernization Program be continued in order to effect significant improvements in the academic research infrastructure. The program addresses a serious problem that threatens to undermine first rate academic research. The program is widely supported by the academic community and has been strongly endorsed by Congress.

Even though the total magnitude of the facilities problem greatly exceeds the current scale of this program, the initial competition for the program attracted an enthusiastic response from educational institutions and resulted in significant leveraging of federal funds. The Committee is disappointed that NSF could not find a way to accommodate the program in a budget request that proposed to increase the Foundation's funding level by 17.5 percent.

In light of the manifest need for refurbishing of academic research facilities, the Committee has authorized \$40 million for the program for fiscal year 1992 and \$43 million for fiscal year 1993. The reduction in the authorization relative to the current NSF authorization law does not reflect a diminished priority for the program but rather reflects the fiscal realities of today. The Committee does not endorse the cuts in disciplinary research programs and education activities that would be required in order to fund the facilities program at the \$250 million per year level in the current authorization law. However, the facilities program should be sustained and allowed to grow, consistent with overall growth in the Foundation's budget. The Committee strongly encourages NSF to plan for, advocate and maintain the facilities funding as an ongoing program.

2. LASER INTERFEROMETER GRAVITATIONAL-WAVE OBSERVATORY (LIGO)

Background

LIGO is a proposed astronomical facility dedicated to the detection of cosmic gravitational waves. Gravitational radiation, or gravity waves, are generated during fast accelerations of massive celestial objects, such as black holes or neutron stars. The effect of a passing gravitational wave is a monetary, extremely small change in the apparent distance between two points. To illustrate the magnitude of this effect, a strong gravitational wave would briefly change the distance between two points 2400 trillion miles apart (one million times the distance to Neptune) by less than the thickness of a human hair.

The measurement techniques proposed to detect the tiny deflections due to passing gravity waves are based on laser interferometry. The proposed LIGO consists of two identical, widely separated

detectors. Two detectors are needed in order to distinguish between the effects of gravity waves and anomalous signals that might be due to some local seismic disturbance, for example. Each detector is "L" shaped with equal length legs comprised of four-foot diameter, 2.5 mile-long vacuum pipes with weights suspended at the ends of the pipes. A laser beam is divided by an optical beam splitter into two separate beams which travel down different legs of the "L", are reflected back by mirrors attached to the weights, and then recombine in the beam splitter. If the distances between the weights are identical, the two beams cancel; but, if the beams travel different distances, an interference effect occurs, which reveals information characterizing the gravitational wave causing the change in length of the legs of the "L". If more than two detectors are built, the location in space of the source of the gravity waves could also be determined and, therefore, the multiple detectors could function like a telescope for studying cosmic events.

Research and development of interferometric gravitational-wave detectors started in the late 1960's. Beginning in 1979, NSF began funding specific interferometer projects at Caltech and MIT; and, in 1984, the National Science Board approved project planning and feasibility studies for a joint effort by Caltech and MIT to develop and operate a LIGO facility.

In 1990, the National Science Board approved the LIGO project, and the NSF included funding for constructing the two facilities in its 1991 budget request. Funds were not appropriated. The NSF fiscal year 1992 budget includes a \$23.5 million request to begin construction of LIGO, which is estimated to cost a total of \$211 million and require five years to construct.

In 1986, the International Committee on General Relativity and Gravitation endorsed plans for kilometer-scale laser-interferometer gravitational wave detectors, one set in Europe and a second in the United States. At this time, the European and United States LIGO designs differ and no international agreement exists to construct a common design, with one detector on each continent as the initial step.

Committee view

For fiscal year 1992, the Committee endorses the expenditure of funds for research activities or design studies associated with the LIGO project. However, in fiscal year 1992, no funds are authorized by the Committee for construction of LIGO.

The Committee does not question the scientific value of research associated with the demanding task of detection of gravitational waves and has not made a final determination as to whether, or when, LIGO ought to proceed to full scale construction. However, the Committee does have questions about the priority that ought to be assigned to LIGO construction at this time.

LIGO was proposed as both a physics experiment and as an astronomical facility. While physicists doing research in gravitation have generally supported the project, the Committee notes that the National Research Council report (NRC), "Physics through the 1990s", stated that the Long-Baseline Gravitational-Wave Facility, as LIGO was then named, should be supported "... assuming that other ongoing work of high quality will not be adversely affected."

This statement implies that this facility was not considered to be the first priority.

Every ten years the astronomy and astrophysics community prioritizes facilities needs for the coming decade. The most recent NRC astronomy survey report, "The Decade of Discovery in Astronomy and Astrophysics", released in March 1991, does not include LIGO among its recommendations. For ground-based astronomy, the report assigned highest priority to maintaining and upgrading existing national research facilities operated by NSF. The report characterizes the astronomy research infrastructure as having deteriorated seriously in the last decade and estimates that a budget increase of \$15 million per year is needed in order to take necessary remedial actions. In addition, the report recommends an increase of \$10 million per year to restore NSF support for individual research grants in astronomy and astrophysics.

Testimony at an NSF authorization hearing before the Subcommittee on Science on March 13, 1991 raised questions about the adequacy of measurement accuracy of LIGO, as proposed, in detecting transient events associated with cosmic phenomena that may be expected to occur with reasonable frequency. The Committee understands that there is considerable uncertainty in estimating the level of sensitivity required. The question remains as to whether the accuracy of LIGO could be significantly increased through additional laboratory research prior to full scale development of the facility.

Finally, the Committee notes the absence of international collaboration in the construction of the first two facilities, which are required to verify the experimental technique. The Committee views LIGO as a highly appropriate scientific project for joint support with an international partner. Not only is the project of interest primarily to fundamental, non-targeted research, but it also requires the construction of widely separated facilities.

In light of the assessments of the previously discussed NRC reports, questions about the degree of readiness of the measurement technology to be employed in LIGO, the lack of international collaboration, and other budget priorities facing NSF, the Committee requests that the National Science Board reevaluate LIGO and reconsider the time at which LIGO construction ought to go forward. Specifically, the Committee requests that the National Science Board perform the review of LIGO and provide a report to the Committee by December 31, 1991, documenting the findings of that review.

If the National Science Board determines that construction of the project should proceed in fiscal year 1993, the report should provide the basis for the decision and, if the project is recommended in part on the basis of its value as an astronomical observatory, should explain why greater priority has been assigned to the project than was assigned by the NRC Astronomy and Astrophysics Survey Committee. The Committee also requests that the National Science Board report describe any actions that NSF will take in response to the recommendations of the NRC astronomy survey report relative to refurbishment, operation and maintenance support for existing NSF national astronomy facilities.

3. EDUCATION AND HUMAN RESOURCE ACTIVITIES

Committee view

The Committee strongly endorses the proposed budget increase of 23 percent above the fiscal year appropriation level for science and engineering education and for development of human resources in science and engineering in fiscal year 1992. The Committee is pleased that significant increases are provided for all levels of instruction: precollege, undergraduate and graduate. This comprehensive approach is necessary to address important needs and deficiencies in science education and to expand interest in science and math among students at the precollege and undergraduate levels.

The Committee notes that resource allocations for undergraduate activities are nearly equally divided between programs in the Education and Human Resources (EHR) Directorate and in the several scientific directorates. The Committee does not object to this management arrangement but calls attention to the importance of strong coordination among these directorates' education activities. The Division of Undergraduate Science, Engineering, and Mathematics Education is the focal point for this coordination. The Committee expects the Director to ensure that this coordinating responsibility is diligently discharged.

Graduate students in science, math and engineering are a potential resource for improving science and math education at the secondary school level. The Committee requests that NSF study the possibility of a program of grants to support graduate students in teaching, or serving as a resource to teachers of, science or math. The study should explore whether such a program is feasible and would be effective. The Committee also requests that NSF provide the Committee with a report on the findings of the study.

For fiscal year 1993, the bill provides an increase of 12.7 percent for EHR rather than 6.4 percent, as included in the NSF three-year budget projection. Most of the resources in EHR are for precollege programs, which the committee believes have not yet achieved funding levels necessary to address the serious problems confronting science and math education in the schools. The Committee intends to restore funding to EHR to achieve at least the levels, in constant dollars, of the late 1960's.

4. INTERAGENCY RESEARCH INITIATIVES

Committee view

The Committee endorses NSF participation in the U.S. Global Change Research Program and the High Performance Computing and Communications Program. The Committee has long advocated establishment of a process to identify research needs in areas of national importance and to formulate coordinated R&D activities across several agencies to achieve the identified goals.

In formulating its role within a particular interagency initiative, NSF senior management presumably reviews the directorate research programs and identifies which disciplinary activities should participate in the initiative. The Committee notes that, for the High-Performance Computing and Communications Program, almost the entire NSF contribution comes from programs within

the Computer Science and Engineering (CISE) Directorate. Since an important aspect of this interagency program is computational research focused on grand challenge problems in many fields of science and engineering, it is not clear why CISE is the only NSF directorate participating.

The Committee requests that NSF provide, as soon as possible, a brief explanation of the process within NSF for determining which NSF activities will participate in a particular interagency research initiative. Also, the Committee requests clarification on the reasons for the apparent lack of participation of directorates other than CISE in the high-performance computing initiative.

5. THREE-YEAR BUDGET ESTIMATE

Background

The NSF Authorization Act of 1988 amended the NSF Act of 1950 to require that NSF submit to Congress, each year, a three-year budget estimate at the time of the annual submission of the President's budget. The Committee's report on oversight of NSF fiscal year 1990 programs (H. Rept 101-309) reviewed the first submission under this requirement and requested that future three-year estimates include an explanation and rationale for funding trends in the various budget categories and subcategories. The second and third three-year estimates submitted again provided no information on relative priorities among the research directorates and did not include the requested explanation and rationale for the estimated funding levels presented.

Committee view

The Committee points out that, without out-year estimates of budget trends that reflect programmatic decisions for all areas of the Foundation, multi-year authorizations are unlikely to be approved in the future. The Committee is aware that estimates of future budget requirements are uncertain and subject to change as unexpected research opportunities emerge, as special interagency programs are endorsed by the Administration or when appropriated levels are different from those requested. However, in general, broad priorities across program areas ought to be available due to the relatively long time scales associated with basic research projects. At the very least, the three-year projections should include discussion of new initiatives in promising research areas that are likely to emerge in future budgets. The Committee needs more useful information to better understand NSF's future plans and intentions.

6. EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCOR)

Background

The Experimental Program to Stimulate Competitive Research (EPSCoR) is a merit-based program designed to improve the scientific and technological capacities of states with less-developed research infrastructures. By setting aside money for worthy projects in these states, the program helps to build a thriving scientific and

technological base across the United States. EPSCoR, which was initiated by this Committee in 1978 and expanded at the instigation of this Committee in 1985, currently funds research in 16 states (Arkansas, Maine, Montana, South Carolina, West Virginia, Alabama, Kentucky, Nevada, North Dakota, Oklahoma, Vermont, Wyoming, Idaho, Louisiana, Mississippi, and South Dakota) and the Commonwealth of Puerto Rico. In fiscal year 1991 Nebraska and Kansas were added to EPSCoR, and they will become eligible to receive research awards in fiscal year 1992.

In fiscal year EPSCoR has begun an advanced development competition among the 17 current states (including Puerto Rico) in which up to ten will receive awards of up to \$1.5 million annually for three years.

Committee view

Since its inception EPSCoR has made great strides towards developing the research infrastructure of the participating states. The Committee wholeheartedly endorses the program because the future economic development of the United States depends upon building a truly national scientific and technical infrastructure. As the May 1991 Office of Technology Assessment report "Federally Funded Research: Decisions for a Decade" notes, "Regional and institutional capacity are important concerns in all federal funding, and encouraging new institutional participants and development of research centers strengthens the future capacity and diversity of the research system." EPSCoR works toward this objective by ensuring that a pool of money is available for merit-based awards for proposals from states with a less-developed research base.

Unfortunately, EPSCoR's success to date has been tightly circumscribed by the size of its budget. The program seeks to fund scientific projects in about one-third of the states with under seven-tenths of one percent of the NSF's Research and Related Activities account. Between fiscal year 1991 and fiscal year 1993, this account should grow by approximately 30 percent. The Committee is certain that this growth is large enough to accommodate the expansion of EPSCoR with ease.

Thus, the Committee urges the NSF to fund awards for one or more additional rounds of advanced development competition to take place in fiscal year 1993. These rounds would give states which fail to receive awards in the first round an opportunity to refine and resubmit their proposals.

Additionally, the Committee is concerned that the \$1.5 million cap on awards may not be enough to provide adequate funding for meritorious research in some of the EPSCoR states. It believes that the NSF should fund larger EPSCoR awards for these states—but only when justified by their proposals.

7. INDIRECT COSTS OF RESEARCH AT UNIVERSITIES

Committee view

The Committee believes that rationalization of current university practices of indirect cost allocation is essential to proper federal oversight of research funds. Clear guidelines and procedures for identification of allowable costs and for their appropriate allocation

must be established before indirect cost recovery can properly reflect the real costs of research at universities. For this reason, the Committee has required the Office of Science and Technology Policy (OSTP) to establish an interagency panel to identify which research costs should be considered direct costs and which should be indirect costs, and additionally, how indirect costs can be most appropriately allocated within the various categories. In its recommendations to the Congress, the OSTP should carefully consider the policy implications of research cost allocation, especially the costs of implementing health and safety regulations. The OSTP should also recommend the most appropriate means to safeguard university compliance with regulations associated with research activities.

It is not the Committee's intent to require the Foundation to establish an indirect cost procedure that differs substantially from those of other federal research funding agencies. The Committee will pursue, with other committees of jurisdiction, comprehensive legislation to govern indirect cost provisions for all federal research funding agencies, and plans to work toward passage of legislation which will provide one indirect cost provision for all agencies.

VI. COMMITTEE OVERSIGHT FINDINGS AND RECOMMENDATIONS

Pursuant to rule XI, clause 2(1)(3) of the Rules of the House of Representatives, under the authority of rules X, clause 2(b)(1) and clause 3(f), the Committee's oversight findings and conclusions are reflected in the recommendations found in the present bill and report.

VII. OVERSIGHT FINDINGS AND RECOMMENDATIONS BY THE COMMITTEE ON GOVERNMENT OPERATIONS

No statement of findings and recommendations on oversight activity pursuant to rule X, clause 2(b)(2), and rule XI, clause 2(1)(3), of the Rules of the House of Representatives, have been submitted by the Committee on Government Operations for inclusion in this report.

VIII. CONGRESSIONAL BUDGET OFFICE

U.S. CONGRESS,
Washington, DC, June 3, 1991.

Hon. GEORGE E. BROWN, Jr.,
Chairman, Committee on Science, Space, and Technology,
House of Representatives, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the attached cost estimate for H.R. 2282, the National Science Foundation Authorization Act Amendments of 1991. Enactment of H.R. 2282 would not affect direct spending or receipts. Therefore, pay-as-you-go procedures would not apply to the bill.

If you wish further details on this estimate, we will be pleased to provide them.

Sincerely,

ROBERT D. REISCHAUER,
Director.

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

1. Bill number: H.R. 2282.
2. Bill title: The National Science Foundation Authorization Act Amendments of 1991.
3. Bill status: As ordered reported by the House Committee on Science, Space, and Technology, May 22, 1991.
4. Bill purpose: H.R. 2282 would authorize appropriations for the National Science Foundation (NSF) for fiscal years 1992 and 1993.
5. Estimated cost to the Federal Government:

[By fiscal year, in millions of dollars]

	1992	1993	1994	1995	1996
Authorization level.....	2,722	3,068			
Estimated outlays.....	1,142	2,413	1,589	493	154

The costs of this bill fall within budget function 250.

Including outlays from prior years' appropriations, total outlays would be \$2,415 million in 1992, assuming appropriation of the authorized amount.

Basis of estimate: This estimate assumes that the full amounts authorized would be appropriated for each fiscal year. The estimated outlays are based on historical spending patterns.

6. Pay-as-you-go considerations: The Budget Enforcement Act of 1990 sets up pay-as-you-go procedures for legislation affecting direct spending or receipts through 1995. CBO estimates that enactment of H.R. 2282 would not affect direct spending or receipts. Therefore, pay-as-you-go procedures would not apply to the bill.

7. Estimated cost to State and local governments: None.

8. Estimate comparison: None.

9. Previous CBO estimate: None.

10. Estimate prepared by: David Hull.

11. Estimate approved by: C.G. Nuckols, for James L. Blum, Assistant Director for Budget Analysis.

IX. IMPACT ON INFLATION

In accordance with rule XI, clause 2(1)(4), of the Rules of the House of Representatives, this legislation is assessed to have no adverse inflationary effect on prices and costs in the operation of the national economy.

X. COMMITTEE RECOMMENDATION

A quorum being present, H.R. 2282, as amended, was ordered reported on May 22, 1991, by a voice vote of the Committee.

XI. CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3 of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omit-

ted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

SECTION 101 OF THE NATIONAL SCIENCE FOUNDATION
AUTHORIZATION ACT OF 1988

TITLE I—NATIONAL SCIENCE FOUNDATION
AUTHORIZATION

AUTHORIZATION OF APPROPRIATIONS

SEC. 101. (a) * * *

* * * * *

[(e) There is authorized to be appropriated to the Foundation \$3,245,000,000 for fiscal year 1992, which shall be available for the following categories:

- [(1) Research and Related Activities, \$2,552,000,000.
- [(2) Science and Engineering Education, \$281,000,000.
- [(3) United States Antarctic Program, \$162,000,000.
- [(4) Academic Research Facilities Modernization, \$250,000,000.

[(f) There is authorized to be appropriated to the Foundation \$3,505,000,000 for fiscal year 1993, which shall be available for the following categories:

- [(1) Research and Related Activities, \$2,772,000,000.
- [(2) Science and Engineering Education, \$308,000,000.
- [(3) United States Antarctic Program, \$175,000,000.
- [(4) Academic Research Facilities Modernization, \$250,000,000.]

(e) *There are authorized to be appropriated to the Foundation \$2,722,000,000 for fiscal year 1992, which shall be available for the following categories:*

(1) *Research and Related Activities, \$1,940,000,000, which shall be available for the following subcategories:*

- (A) *Mathematical and Physical Sciences, \$626,580,000.*
- (B) *Engineering, \$247,700,000.*
- (C) *Biological, Behavioral, and Social Sciences, \$355,640,000.*
- (D) *Geosciences, \$419,540,000.*
- (E) *Computer and Information Science and Engineering, \$229,500,000.*
- (F) *Scientific, Technological, and International Affairs, \$61,040,000.*

(2) *Education and Human Resources, \$390,000,000.*

(3) *United States Antarctic Program, \$193,000,000.*

(4) *Academic Research Facilities Modernization Program, \$40,000,000.*

(5) *Academic Research Instrumentation Program, \$33,500,000.*

(6) *Salaries and Expenses, \$122,000,000.*

(7) *Office of Inspector General, \$3,500,000.*

(f) *There are authorized to be appropriated to the Foundation \$3,068,000,000 for fiscal year 1993, which shall be available for the following categories:*

(1) *Research and Related Activities, \$2,210,000,000, which shall be available for the following subcategories:*

(A) *Mathematical and Physical Sciences, \$731,460,000.*

(B) *Engineering, \$278,325,000.*

(C) *Biological, Behavioral, and Social Sciences, \$400,400,000.*

(D) *Geosciences, \$472,665,000.*

(E) *Computer and Information Science and Engineering, \$258,790,000.*

(F) *Scientific, Technological, and International Affairs, \$68,360,000.*

(2) *Education and Human Resources, \$439,000,000.*

(3) *United States Antarctic Program, \$210,000,000.*

(4) *Academic Research Facilities Modernization Program, \$43,000,000.*

(5) *Academic Research Instrumentation Program, \$36,000,000.*

(6) *Salaries and Expenses, \$126,000,000.*

(7) *Office of Inspector General, \$4,000,000.*

* * * * *

(i) *Of the amount authorized in subsection (e), no funds shall be available for construction of the Laser Interferometer Gravitational Wave Observatory. This limitation shall not apply to expenditure of funds for research activities or design studies associated with such project.*

SECTION 5 OF THE NATIONAL SCIENCE FOUNDATION ACT OF 1950

DIRECTOR OF THE FOUNDATION

SEC. 5. (a) * * *

* * * * *

(e)(1) The Director may make grants, contracts, and other arrangements pursuant to section 11(c) only with the prior approval of the Board or under authority delegated by the Board, and subject to such conditions as the Board may specify.

(2) Any delegation of authority or imposition of conditions under the preceding sentence shall be effective only for such period of time, not exceeding two years, as the Board may specify, and shall be promptly published in the Federal Register and reported to the Committees on Labor and Human Resources and Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology of the House of Representatives. On October 1 of each off-numbered year the Board shall submit to the Congress a concise report which explains and justifies any actions taken by the Board under this subsection to delegate its authority or impose conditions within the preceding two years. [The provisions of this subsection shall cease to be effective at the end of fiscal year 1989.]